

Claims

What is claimed is:

1. An antenna system comprising:
 - a plurality of antenna elements;
 - a plurality of switching elements arranged with the antenna elements to, when selectively closed, electrically couple selected ones of the antenna elements to one another to generate an antenna configuration selected from a plurality of antenna configurations;
 - a control arrangement operatively coupled to the plurality of switching elements and configured to close selected ones of the switching elements as a function of the selected antenna configuration; and
 - a memory operatively coupled to the control arrangement and configured to store data representing at least some of the plurality of antenna configurations and to selectively update the data.
2. The antenna system of claim 1, wherein the control arrangement is coupled to receive a control signal and configured to:
 - select the antenna configuration from the plurality of antenna configurations in response to the control signal;
 - select the selected ones of the switching elements as a function of the selected antenna configuration; and
 - provide a switch control signal to the selected ones of the switching elements to close the selected ones of the switching elements.
3. The antenna system of claim 2, wherein the control signal comprises one of a received signal strength indicator (RSSI) signal, an antenna impedance indicator signal, and a control signal received from a remote receiver.
4. The antenna system of claim 2, wherein the control signal is generated as a function of an operational mode of the antenna system.

5. The antenna system of claim 4, wherein the operational mode is selected from the group consisting of AM radio, FM radio, television, remote function access (RFA), wireless data and voice communications, global positioning system (GPS), and satellite-based digital audio radio services (SDARS).

6. The antenna system of claim 2, wherein the control signal is generated as a function of a tuned frequency.

7. The antenna system of claim 2, wherein the control signal is generated in response to activating a vehicle communication system.

8. The antenna system of claim 2, wherein the control arrangement comprises:

- a processor arrangement configured to select the antenna configuration from the plurality of antenna configurations in response to the control signal; and

- a switch controller operatively coupled to the plurality of switching elements and to the processor arrangement and configured to close the selected ones of the switching elements as a function of the selected antenna configuration.

9. A communication system comprising:

- a receiver configured to generate a control signal in response to a radiated electromagnetic signal;

- a plurality of antenna elements operatively coupled to the receiver and arranged to receive the radiated electromagnetic signal;

- a plurality of switching elements arranged with the antenna elements to, when selectively closed, electrically couple selected ones of the antenna elements to one another;

- a memory configured to store data representing a plurality of antenna configurations;

a processor arrangement operatively coupled to the memory and operatively coupled to receive the control signal and configured to select an antenna configuration from the plurality of antenna configurations in response to the control signal and to selectively update the data stored in the memory in response to the control signal; and

a switch controller operatively coupled to the plurality of switching elements and to the processor arrangement and configured to close selected ones of the switching elements as a function of the selected antenna configuration.

10. The communication system of claim 9, wherein the control signal comprises one of a received signal strength indicator (RSSI) signal, an antenna impedance indicator signal, and a control signal received from a remote receiver.

11. The communication system of claim 9, wherein the receiver is configured to generate the control signal as a function of an operational mode of the antenna system.

12. The communication system of claim 11, wherein the operational mode is selected from the group consisting of AM radio, FM radio, television, remote function access (RFA), wireless data and voice communications, global positioning system (GPS), and satellite-based digital audio radio services (SDARS).

13. The communication system of claim 9, wherein the receiver is configured to generate the control signal as a function of a tuned frequency.

14. The communication system of claim 9, wherein the receiver is configured to generate the control signal in response to being activated.

15. A method of configuring an antenna system comprising a plurality of antenna elements, the method comprising:

receiving a control signal;

selecting an antenna configuration from a plurality of antenna configurations in response to the control signal;

controlling a memory to output data representing the selected antenna configuration;

configuring a plurality of switching elements in response to the output data to electrically couple selected ones of the plurality of antenna elements to one another, thereby generating the selected antenna configuration; and

updating the data stored in the memory as a function of the control signal.

16. The method of claim 15, further comprising:

selecting at least one of the plurality of switching elements as a function of the selected antenna configuration; and

provide a switch control signal to the selected ones of the switching elements to close the selected ones of the switching elements.

17. The method of claim 15, wherein the control signal comprises one of a received signal strength indicator (RSSI) signal, an antenna impedance indicator signal, and a control signal received from a remote receiver.

18. The method of claim 15, wherein the control signal is generated as a function of an operational mode of the antenna system.

19. The method of claim 18, wherein the operational mode is selected from the group consisting of AM radio, FM radio, television, remote function access (RFA), wireless data and voice communications, global

positioning system (GPS), and satellite-based digital audio radio services (SDARS).

20. The method of claim 15, wherein the control signal is generated as a function of a tuned frequency.

21. The method of claim 15, wherein the control signal is generated in response to activating a vehicle communication system.

22. A processor-readable medium having processor-executable instructions for:

- selecting an antenna configuration from a plurality of antenna configurations in response to a control signal;
- controlling a memory to output data representing the selected antenna configuration;
- configuring a plurality of switching elements in response to the output data to electrically couple selected ones of a plurality of antenna elements to one another, thereby generating the selected antenna configuration;
- and
- updating the data stored in the memory as a function of the control signal.

23. The processor-readable medium of claim 22, having further processor-executable instructions for:

- selecting at least one of the plurality of switching elements as a function of the selected antenna configuration; and
- providing a switch control signal to the selected ones of the switching elements to close the selected ones of the switching elements.

24. The processor-readable medium of claim 22, wherein the control signal comprises one of a received signal strength indicator (RSSI)

signal, an antenna impedance indicator signal, and a control signal received from a remote receiver.

25. The processor-readable medium of claim 22, wherein the control signal is generated as a function of an operational mode of the antenna system.

26. The processor-readable medium of claim 25, wherein the operational mode is selected from the group consisting of AM radio, FM radio, television, remote function access (RFA), wireless data and voice communications, global positioning system (GPS), and satellite-based digital audio radio services (SDARS).

27. The processor-readable medium of claim 22, wherein the control signal is generated as a function of a tuned frequency.

28. The processor-readable medium of claim 22, wherein the control signal is generated in response to activating a vehicle communication system.